CLAIMS

I claim:

1. An electrical power generator, comprising:

a coil formed from material which is electrically superconductive at temperatures below a critical temperature;

a container surrounding said coil adapted for holding a cryogenic fluid to maintain said coil at a temperature below said critical temperature;

a prime mover mounted in said power generator so as to be rotatable in response to a gaseous stream;

a conduit for applying a gaseous stream to said prime mover from a source of pressurized gas; and

an electrical conductor rotatably mounted in said power generator and operatively connected to said prime mover so that rotational movement of said prime mover is transferred to said electrical conductor, said electrical conductor being mounted in a position with respect to said coil so that an electrical current flow in said coil will produce a magnetic field in the space in which said electrical conductor is rotatable, thereby generating a voltage gradient within said electrical conductor in response to rotational movement of said electrical conductor through said magnetic field.

2. The apparatus of claim 1 wherein said source of pressurized gas is said container and said gaseous stream comprises gas resulting from evaporation of said cryogenic fluid.

3 The apparatus of claim 1 wherein said prime mover comprises a plurality of disks coaxially mounted in spaced apart locations in substantially parallel planes.

4. The apparatus of claim 1 wherein said prime mover comprises a bladed turbine.

5. The apparatus of claim 1 wherein said electrical conductor comprises a Faraday disk.

6. The apparatus of claim 1 wherein said electrical conductor is mounted external to said container.

7. The apparatus of claim 5 wherein said Faraday disk is mounted external to said container.

8. The apparatus of claim 1 wherein said cryogenic fluid is liquid nitrogen and said material is yttrium barium copper oxide.

9. An electrical power generator, comprising:

a coil formed from material which is electrically superconductive at temperatures below a critical temperature;

a container surrounding said coil adapted for holding a cryogenic fluid to maintain said coil at a temperature below said critical temperature;

a prime mover mounted in said power generator so as to be rotatable in response to a gaseous stream;

a conduit between said container and said prime mover for conveying a gaseous stream resulting from evaporation of said cryogenic fluid from said container to said prime mover; and

a Faraday disk rotatably mounted in said power generator and operatively connected to said prime mover so that rotational movement of said prime mover is transferred to said Faraday disk, said Faraday disk being mounted in a position with respect to said coil so that an electrical current flow in said coil will produce a magnetic field in the space in which said Faraday disk is rotatable, thereby generating a voltage gradient

between the center and the outer edge of said Faraday disk in response to rotational movement of said Faraday disk through said magnetic field.

10. The apparatus of claim 9 wherein said prime mover comprises a plurality of disks coaxially mounted in spaced apart locations in substantially parallel planes.

11. The apparatus of claim 9 wherein said prime mover comprises a bladed turbine.

12. The apparatus of claim 9 wherein said Faraday disk is mounted external to said container.

13. An electrical power generator, comprising:

a coil formed from material which is electrically superconductive at temperatures below a critical temperature;

a container surrounding said coil adapted for holding a cryogenic fluid to maintain said coil at a temperature below said critical temperature;

a prime mover mounted in said power generator so as to be rotatable in response to a gaseous stream;

a conduit between said container and said prime mover for conveying a gaseous stream resulting from evaporation of said cryogenic fluid from said container to said prime mover; and

an electrical conductor rotatably mounted in said power generator and operatively connected to said prime mover so that rotational movement of said prime mover is transferred to said electrical conductor, said electrical conductor being mounted in a position with respect to said coil so that an electrical current flow in said coil will produce a magnetic field in the space in which said electrical conductor is rotatable, thereby generating a voltage gradient within said electrical conductor in response to rotational movement of said electrical conductor through said magnetic field.

14. A method for constructing an electrical power generator, comprising:

forming a coil from a material which is electrically superconductive at temperatures below a critical temperature;

enclosing said coil in a container adapted for holding a cryogenic fluid to maintain said coil at a temperature below said critical temperature;

mounting a prime mover in said power generator so as to be rotatable in response to a gaseous stream;

connecting a conduit between said container and said prime mover for conveying a gaseous stream from said container resulting from evaporation of said cryogenic fluid; and

rotatably mounting an electrical conductor in said power generator in a position with respect to said coil so that an electrical current flow in said coil will produce a magnetic field in the space in which said electrical conductor is rotatable and operatively connecting said electrical conductor to said prime mover so that rotational movement of said prime mover is transferred to said electrical conductor, thereby generating a voltage gradient within said electrical conductor in response to rotational movement of said electrical conductor through said magnetic field.

15 The method of claim 14 wherein said prime mover comprises a plurality of disks coaxially mounted in spaced apart locations in substantially parallel planes.

16. The method of claim 14 wherein said electrical conductor comprises a Faraday disk.

17. The method of claim 14 wherein said electrical conductor is mounted external to said container.

18. The method of claim 14 wherein said cryogenic fluid is nitrogen and said material is yttrium barium copper oxide.

19. A method for constructing an electrical power generator, comprising:

forming a coil from a material which is electrically superconductive at temperatures below a critical temperature;

enclosing said coil in a container adapted for holding a cryogenic fluid to maintain said coil at a temperature below said critical temperature;

mounting a prime mover in said power generator so as to be rotatable in response to a gaseous stream;

connecting a conduit for applying a gaseous stream to said prime mover from a source of pressurized gas; and

rotatably mounting an electrical conductor in said power generator in a position with respect to said coil so that an electrical current flow in said coil will produce a magnetic field in the space in which said electrical conductor is rotatable and operatively connecting said electrical conductor to said prime mover so that rotational movement of said prime mover is transferred to said electrical conductor, thereby generating a voltage gradient within said electrical conductor in response to rotational movement of said electrical conductor through said magnetic field.

20. The method of claim 19 wherein said source of pressurized gas is said container and said gaseous stream comprises gas resulting from evaporation of said cryogenic fluid.

21. A method for generating electrical power, comprising

generating a magnetic filed by circulating an electrical current in an electrically superconductive coil immersed in a cryogenic fluid;

utilizing a flow of gas resulting from evaporation of a cryogenic fluid to generate rotational movement of a prime mover; and

operatively connecting said prime mover to an electrical conductor to rotate said electrical conductor in said magnetic field, thereby generating electrical power.

22. An apparatus for generating electrical power, comprising:

an electrically superconductive coil immersed in a cryogenic fluid, said superconductive coil generating a magnetic field within a region surrounding said superconductive coil when an electrical current circulates in said surperconductive coil;

a prime mover;

a conduit which conducts a flow of gas resulting from evaporation of a cryogenic fluid to said prime mover to induce rotational motion in said prime mover; and

an electrical conductor rotatably mounted within said region, and operatively connected to said prime mover so that rotational movement of said prime mover is transferred to said electrical conductor.

23. A method for manufacturing a superconductive electrical conductor, comprising

forming a channel in a mold; and

depositing a material in said channel, said material being superconductive at temperatures below a critical temperature.

24. The method of claim 23 wherein said material is yttrium barium copper oxide

25. A method for manufacturing an electrically superconductive coil, comprising:

forming a spiral channel in a mold, said spiral channel extending from a first location at a top side of said mold to a second location at the bottom side of said mold;

forming a connective channel between said first location and said second location; and

depositing a material in said spiral channel and in said connective channel; said material being superconductive at temperatures below a critical temperature.

26. The method of claim 25 wherein said material is yttrium barium copper oxide

27. A superconductive electrical conductor, comprising

a mold having a channel formed therein; and

a material deposited in said channel, said material being superconductive at temperatures below a critical temperature.

28. The apparatus of claim 27 wherein said material is yttrium barium copper oxide

29. An electrically superconductive coil, comprising:

a mold having a spiral channel formed therein, said spiral channel extending from a first location at a top side of said mold to a second location at the bottom side of said mold, and having a connective channel formed in said mold between said first location and said second location; and

a material deposited in said spiral channel and in said connective channel; said material being superconductive at temperatures below a critical temperature.

30. The apparatus of claim 29 wherein said material is yttrium barium copper oxide